



# LPE Short Subjects

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- **LPE-Sponsored Studies**
- **Energy Stewardship**
- **Seabees ISO MAGTF**
- **MARFORRES Initiative to Restructure Sixth ESB**
- **EOD Company TOECR Status**
- **Capabilities Portfolio Management (CpM)**
  - **Joint Engineer CAM**
  - **Joint Logistics Services FCIB**

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# LPE Sponsored Studies



# LPE Sponsored Studies

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## Explosive Hazard reduction for Mobility support to the MAGTF

- Engineer IED Reduction Initiative:
  - Result of Oct 07 Ground Board Tasker to examine:
    - Implementation of Combat Engineers “Blow and Go” and Explosive Hazards Reduction
    - Integration of EOD organically into Division
    - LP held EOD and Engineer Explosive Hazards Summit in Jan 08
      - No consensus (complex weapon system vs. booby trap)
  - Way Ahead
    - Submitted for DOTMLPF Study by MCCDC
      - » October 2008 Start
    - Education-
      - » VIP visit to EOD School sked for MEF/ MCES/Division Engineers



# **LPE Sponsored Studies (continued)**

- PEI to Maintainer Ratio:
  - Proliferation of Command Centers and “Habitability Sets” for Utilities Equipment without commensurate increase in maintainers:
    - SASSY Allowance for Tactical Generators – 5190
    - MCSC Generators in Al Anbar Province - 4240
  - August 08 – began study through MCCDC to establish a realistic ratio



# **LPE Sponsored Studies (cont)**

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- Bulk Fuel:
  - Last study examined bulk fuel transportation for existing capabilities
  - Examine
    - Scenario based current and future receipt and storage
    - Future systems
    - Task organization, equipment, planning factors

# Energy Stewardship



# OSD Energy Security Task Force (ESTF)

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- Established in May 2006 to address SecDef tasking:
  - “Power and Energy Alternatives and Efficiency – DDR&E will chair a task Force with representatives from the Military Services, Defense Agencies, USD(ATL), USD(P), and USTRANSCOM to define an investment roadmap for lowering DoD’s fossil fuel requirements and develop alternate fuels.
    - Findings on the total delivered cost of fuel consumed by DoD platforms, including logistics and force protection.
    - Proposals to improve energy efficiency of DoD platforms.
    - Recommendations to enable the production and use of alternate fuels, especially domestically-sourced fuels.”
- Provided initial review to DAWG in Sept 2006
  - DAWG funded 7 demonstration projects that would directly support warfighters (\$+131M for FY08 program starts)
- ESTF continues to integrate and lead DoD energy efforts
- 2008 GDF tasked development of a strategic plan

# OSD Tactical Energy Stewardship - Drivers

U.S. Marine Corps Maj. Gen. Richard Zilmer, Al-Anbar Commander, submitted an **urgent request for renewable energy systems**, due to the vulnerability of American supply lines to insurgent attack by ambush or roadside bombs. The request said “**reducing the military's dependence on fuel for power generation could reduce the number of road-bound convoys.**” ...’Without this solution [renewable energy systems], personnel loss rates are likely to continue at their current rate. Continued casualty accumulation exhibits potential to jeopardize mission success...’”

*Defense News, August 2006*





# Mandates...Infrastructure

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- **EPAAct 2005**

- 75% Alternative Fuel Vehicles (AFV) in Metropolitan Areas

- **Executive Order 13149**

- 20% reduction in petroleum fuels



# LP Energy Stewardship Efforts

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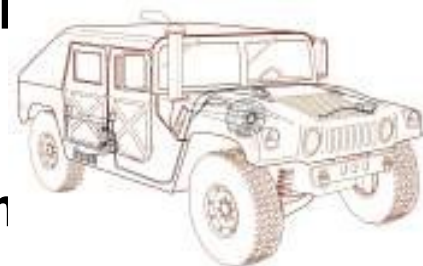
- Represented HQMC on:
  - Two Defense Science Boards
  - Three Fuel Efficiency GAO Surveys
  - OSD Energy Security Task Force
- Wrote 2002 CMC Policy Letter for Fossil Fuel Reduction
  - Established Energy reduction KPP's for Material Solutions
- Support MCSC PM Power in Alternative Energy Solutions and experimentation – POM 10 Initiatives (MCCDC plus up \$15M)



# **POM 10 - MCSC Initiatives - Alternative Power for Communications**

## **Overarching program**

- Radio Power Adapters**
- 24 VDC Radio Power Adapters**
- General Purpose Power Supplies**
- On Board Vehicle Power**
- Battery Management Systems**
  - Automotive Systems**
  - Comm-Elec Radio/Sensor System**



Fuel \$



Force  
Protection  
Requirements



Operational  
Costs



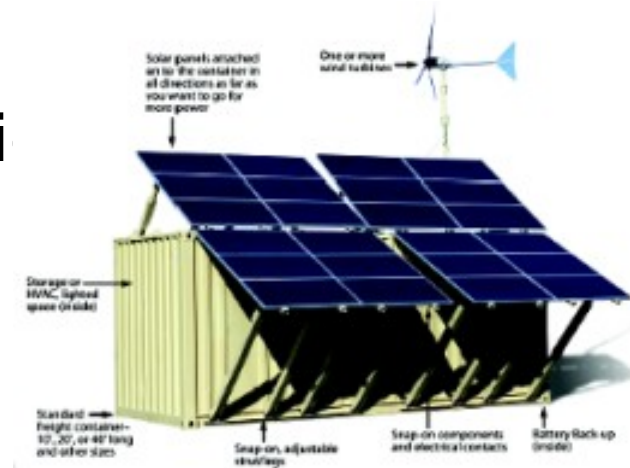
Upfront  
Costs





# Defense Renewable Energy Alternative Module (DREAM)

- MCSC/ONR Rapid Technology Transition (RTT) funding (FY07-08) (\$760K)
  - Loaded Weight  $\leq$  4200 lbs
  - HMMWV towable
  - Up to 5 kW Output (3 kW continuous output)
  - Energy storage in batteries
  - May use:
    - solar,
    - wind,
    - Back-up generator
  - $\geq$  15 days operation without refuel





# MCSC On-Board Vehicle Power Systems

## USMC Statement of Need

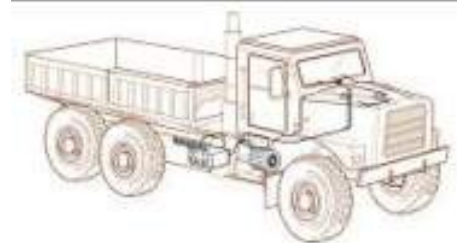
**DC-AC Power Inverters**  
1500- 3000 watts



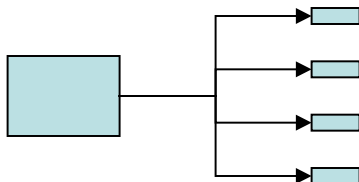
**OBVP - Small**  
5 - 8 kW (HMMWV)



**OBVP - Large**  
60 - 100 kW (MTVR)



**Vehicle DC Power Distribution**



**OBVP - Medium**  
30 kW Add-on HMMWV





# Integrated Trailer, ECU, Generator (ITEC)

## Capability Description

- New Start Initiative
- An integrated and organically supported system comprised of components that provide:
  - HMMWV towable tactical trailer,
  - Environmental Control Unit (heating & cooling)
  - Electric generator (for ECU power and export power)
- Support missions across the MAGTF
- Supportive of all Operational Concepts, plus
  - Reduces embarkation footprint,
  - Reduced support issues of disparate systems

currently fielded

## Deficiency Satisfaction

- Current programs of record and FMF units are buying untested commercial systems without adequate post-production support
- Maintenance organizations not trained on equipment
- Unit costs are 2X military systems due to:
  - Purchasing method of buying small quantities at a time
  - Constantly changing configuration / undefined needs

- Future programs are addressing / solidifying

## Material Solution - Modified COTS



## Requirements Status

- Individual programs derived requirements in their ORDs – principally driven by transportability requirement
- Urgent UNS for FRSS & HMMWV towable 22 kW Generator
- UNS for TGECU submitted by 2n FSSG – April 2005
- AAO potential: 400-800 (depending on level of backup needed) based on Mobile Electric Power Study
- Fielding Plan – no addressed yet



# Take Aways on Tactical Fuel Savings

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Until you address Aviation -

...the Infantry and Logisticians are not where to look for savings

But in situations where diesel fuel is:

- not available,
- can't be used (man-portable items), or
- prohibitively expensive ....

Alternatives offer significant advantages.



# Finding the Way Ahead

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- Include fuel efficiency in all requirements and acquisition processes.
- Aggressively explore/pursue alternative fuels and power technologies.
  - Commercial application efficiency improvements will benefit tactical applications
  - Alternative Fuel Hybrid Electric Vehicles, Hydrogen Fuel Cells
- **Challenge - Establishing savings while building to 202K**



Seabees ISO MAGTF



# Update Terms of Reference (TOR)

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- NCD and LPE co-authored rewrite of 1988 Vintage TOR
  - Major Revisions
    - Aligned changes in organizations for Interoperability
    - Emphasize
      - Interoperability Working Group (IWG)
      - Capitalize on Current Operations and expand for future
        - » Security Cooperation MAGTFs
        - » Commonality of Equipment/Training
      - Re-examine Doctrinal C2 Relationships
        - » NCF Asset as MSC
        - » (II MEF next rendition of OIF or under MLG?
- TOR Status –
  - Vetted through MARFORs
  - Staffing through Navy N4

# MARFORRES Initiative to Restructure Sixth ESB



## 4<sup>th</sup> MLG Initiative

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- MLG G-1 Chairing OPT (LPE, LPV, TFSD participating)
  - Proposal to take second Bulk Fuel Company and convert into line company
    - Pros – manpower to assist in Dwell/augment 9<sup>th</sup> ESB (addl Line Co non-competed in URB)
    - Con – OPlan need for additional Bulk Fuel Capability?
  - OPT met via Teleconference on 22 Sep

# Explosive Ordnance Disposal (EOD) Company T/O



# EOD Company TOECR Status

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- TOECR (proposed in 2006) never made it out of MEF (13/136 for 1<sup>st</sup> and 2<sup>nd</sup> MLG)
  - Challenges (additional manpower for augments)
    - Corpsmen/radio operators/First Sergeant, etc.
    - Mirror Imaging across MLGs
  - Way Ahead – EOD Action Officer at HQMC to submit through TFSD

# Overarching CPM Philosophy

## ***Balancing Capability and Capacity Through the Future***



*Balance is based on moving the fulcrum, measured in risk and interdependence*



# Joint Engineer Community Governance

## Portfolio Capability Area

### Stakeholders

### Community of Interest

### Community of Practice

(JS J4, Engr CAM, Service Engineers and JFCOM)

R&D Community

Facility Management Agencies

Operational Elements

COCOM Engineers

NGA

Service Programmers

Acquisition Community

Distribution System

### JL Functional Capability Integration Board

(Evolved version of today's JLB)

JS, J4- L&MR

Svc 4s, DLA, DCUSTC, DCJFCOM + **Engr CAM**

### Joint Operational Engineer Board

CHAIR: Engr CAM + DJ4

MEMBERS: Service, COCOM, & JFCOM Engineers (GO/FO Level)

Meets Quarterly

### JOEB Coordination Group

CHAIR: J4 Engr and **Engr CAM AO**

MEMBERS: Service and JFCOM Engineers (O6 Level)

Meets Bi-Weekly

### CAM Staff

### Working Groups

Requirements

Resourcing

Training

Equipping

Engineer RDT&E

CBT Engr

Gen Engr

Geo Engr

TWG

CWG

DTWG

IWG

**SWG**

Meet Quarterly

Or More Often as Required





# Capability Portfolio Management Process

**Establish the baseline**

**1**

**Identify the current strategic drivers and operating environment**

**OV-1**

- National Policy and Strategies
- Global Threats
- JOpC's/JOC's
- JCA's

**Answer the question:**  
**"What should we deliver to the Nation and the warfighter?"**

**SP**

**Draw conclusions and apply to the capability area:**  
**Balance Efficiency with Effectiveness**

**6**

**D  
O  
T  
M  
L  
P  
F**

**5**

**Align the programs, people, processes and systems to deliver the most effective outcome at best overall value**

**4**

**Select and develop metrics**

**Joint Engineer Capability Elements**

- Deploy Engineer Forces
- Plan and Control Engineer Forces
- Detect and Neutralize Explosive Harazards
- Provide Gap Crossing
- Enhance Mobility In Complex and Urban Terrain
- Attack Enemy Freedom of Maneuver
- Generate, Distribute, and Analyze Geospatial Data
- Mobility Assessments
- Provide Deployable Earthmoving
- Repair / Construct Air and Ground LOCs
- Repair and Restore Airfields and Infrastructure
- Enable Theater Access
- Enhance Force Protection
- Enhance Infrastructure Protection
- Base Camp, Airfield and Contingency Facility Master Planning

**Engineer JCA**

**3**

**Identify how the functions are applied**

**JOINT ENGINEER CONCEPTS**



**Engineer CONOPS and Integrating Concept**



# **CpM Initiative (Acquisition)**

## **Joint Engineer Equipment Acquisition**

- Collaborative Establishment of Lead/Follow Services Buys:
  - Examples: USMC lead on Assault Breacher Vehicle and Joint Assault Bridge – Army buys off contract
  - Opportunities – Commonality from equipment/parts/maintenance support
  - Challenges: Synchronization of equipment buys and Service parochialism



# **CpM Initiative**

## **Joint Engineer Operations Course**

- Established to provide current joint ops knowledge to Mid-Level (O-3, O-4) Officers and Mid-Level (E-6, E-7) NCOs
- Original course schedule - 3/year with 45 students
- To meet needs of combatant commanders
  - 4 classes now held annually
  - One each at Wright-Patterson AFB, Fort Leonard Wood, MCB Quantico and Port Hueneme (hosted by individual Service)
  - Class size is 53 students:
    - USA- 19;
    - USAF- 16;
    - USN- 7;
    - USMC- 3;
    - MN- 1;
    - Industry- 2;
    - CoE Civ- 2;
    - Non-Engineer - 2



# Joint Engineer Operations Course

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- Includes Distance Learning (48 hrs) and In-Residence (32 hrs) phases
- 265 Graduates in ranks from E-6 to O-6 including Warrant Officers
- Next Class held at MCB Quantico 17-21 Nov
- Current funding agreement has services paying a “fair share”
  - USA- \$170.5K; USAF- \$146.2K; USN- \$65K; USMC- \$24.3K



# Joint Airfield Damage Repair (ADR) Working Group

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- Premise: Airfield as Weapon System: ADR part of system
- ADR encompasses R&D, acquisition, training and material/equipment employment
- Joint/Coalition Need for new ADR procedures and materials
  - Current technology based upon Cold War threat - 3 large craters repaired in 4 hours
  - New mission requirement drives need for repair of 100 small craters and restore flight operations in 8 hours (PACAF)
- PACAF/ PACOM combined ADR needs - pushed to DEPSECDEF and OSD for assistance
  - Critical Runway Assessment and Repair (CRATR) Joint Capabilities Technology Demonstration (JCTD) program established with OSD approval and funding
  - CRATR JCTD efforts combined with ongoing ADR WG efforts



## ADR WG (cont)

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- Meeting at Tyndall AFB (20 July 08)
  - Covered ADR R&D Efforts
    - Soviet Slab Project
    - Asphalt Concrete Pavement Evaluation
    - Contingency Culvert Project
    - FFM Inspection/Specification
    - High Temperature Mat Testing
    - New Mat Development
    - Pelletized Asphalt Repair
    - Fiberglass Mat and Anchor Project
    - Crater Capping and Foam Injection Backfill
    - Rubber Removal
  - Covered CRATR JCTD R&D program



## ADR WG (cont)

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- CRATR JCTD R&D program At Tyndall AFB (20 Jul – 27 Sep 08)
  - Spall Repair Projects
  - Evaluation of Polymeric Spall Repair Material
  - UAV - Automated Damage Assessment Project
  - Automated Damage Assessment – MOS Selection
  - Advanced ADR Backfill and Crater Capping Project
  - ADR Equipment Project





# **Tyndall Silver Flag August 2008 CRATR Demonstration**







# CRATR JCTD Timeline

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- FY08
  - Jan 08: JCTD Kick off Meeting, Atlanta,
  - Apr 08: Materials/Equipment Vendor Day, (Tyndall AFB)
    - Accept promising candidates, reject others
    - Conduct evaluation at test base
  - Aug 08: Limited Utility Assessment, (LUA 1) – CONUS Demonstration (Tyndall AFB)
- FY09
  - Apr 09: LUA 2 – OCONUS Demonstration (Kadena AB)
    - Expect prototype Rapid Auto Damage Assessment System (RADAS) to remain as residual capability
  - Mar-Apr 09: Approved ADR Capabilities Development Document (CDD)
  - Aug 09: Military Utility Assessment (MUA), CONUS Demonstration, (Malmstrom AFB)
- FY10
  - Transition CRATR JCTD to formal ADR Acquisition Program via FY10 ADR POM Initiative
  - Systems Development & Demonstration (SDD)



# Logistic Services

## Capability Area Management (CAM)

- Encompasses Logistics Services (Joint Definition

**Field Billeting**

**Shower**

**Laundry**

**Latrine**

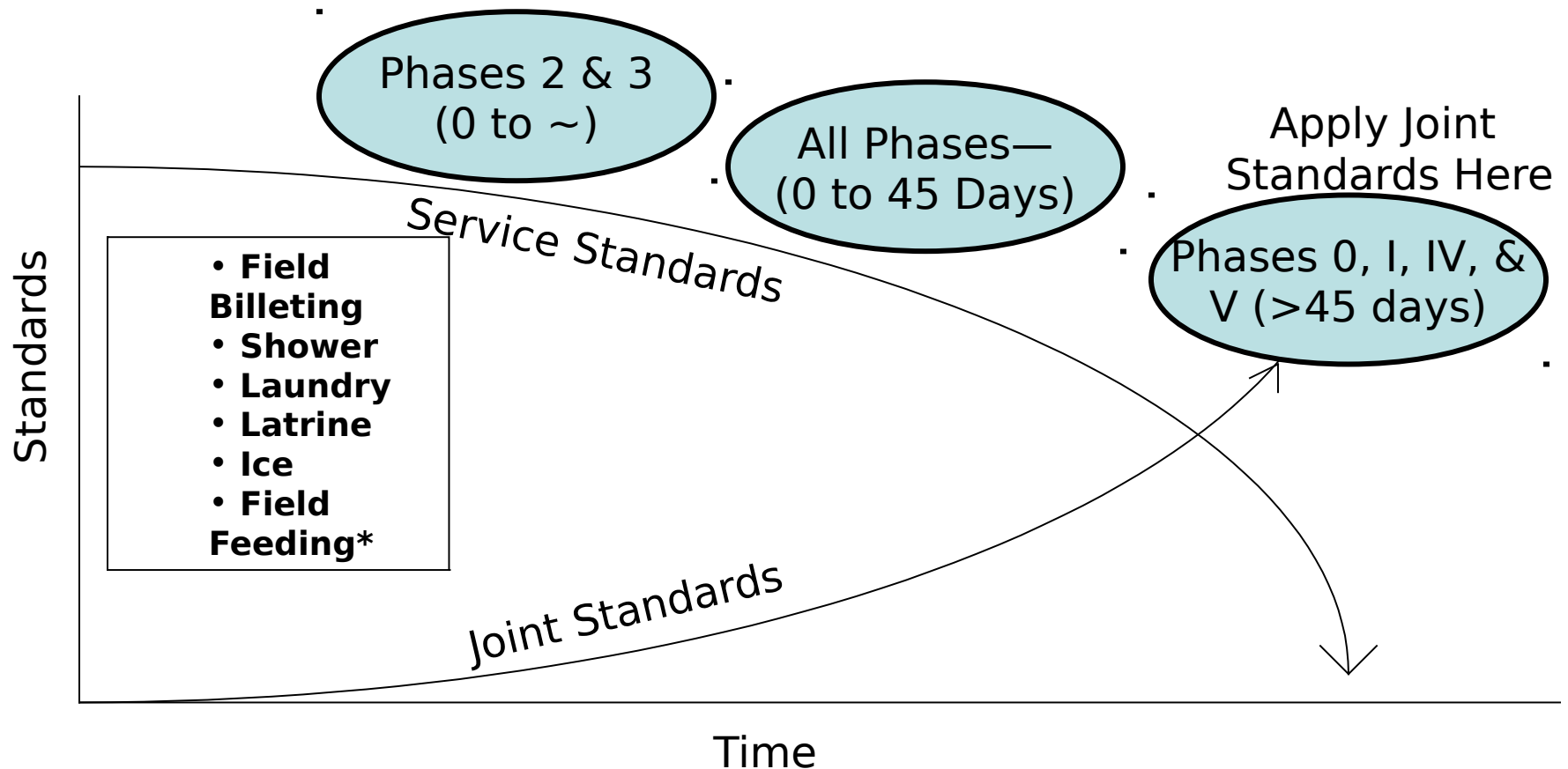
**Ice**

**Field Feeding**





# Concept to Apply Joint Standards



\* Field Feeding: Applies to all phases



# **Joint Standards of Life Support Rationale**

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- **Intent**
  - Equip to eliminate 'haves'/'have nots'
  - Favor Joint Commander's demand signal and objectives
- **Benefits**
  - Provide a consistent level of habitability when possible for Soldiers, Sailors, Airmen, and Marines
  - Facilitate pursuit of 'Jointness'
    - Increase equipment standardization
    - Reduce acquisition & life - cycle costs
    - Improve readiness via common logistics supportability
    - Narrow the differences in Service doctrine
- **Parameters**
  - Avoid standards that drive additional or increasing air movement
  - Avoid interference with Service Phase II/III CONOPS
  - Leverage existing POMs, invested capabilities, Service strengths
  - Pursue 'jointness' thru attrition, programmed modernization, and reset



# JCS Proposed Joint Standards of Life Support

Category	Proposed Standard
Field Feeding	Adopt Army Standard as minimums for all Phases (see chart). UGRs represent minimum %s.
Field Billeting	Adopt USAF, Navy, and USMC Standard of ~50 SF per person (in an environmentally controlled environment). (If TTP & mission planning prescribe continuous rotating sleeping shifts, (e.g. day/night, 24/7/365, populations) in each billeting facility may be adjusted to achieve effectively 50 SF per person).
Field Shower	Modified Army: Unit/Field Service Co. Min <u>2</u> - 7 minute shower with soap and hot water per week. Medical and Females in cycle 2 - 7 minute showers per week. Shower Heads to population 1:20 threshold, 1:10 (Objective)
Field Laundry	Adopt USAF Standard 17 lbs./PP/Week minimum
Field Latrine	Modified Army: Water flush latrines. Minimum 1 water-flush latrine per 25 males, (or, 4% of males, 6% of females)
Field Ice (temperate to tropical)	Modified Army: 8 lbs per day minimum (based upon Army 2.9 lbs plus additional 4-6 lbs/soldier/day. (<32F...no standard)

**Implications to USMC: Potential for additional Funding required to support higher standards than USMC SOL for Expeditionary Warfare – Marine Rep non-concurs with any mandated higher standards**



# **JCS - Request for Senior Warfighters Forum (SWARF)**

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- TRANSCOM initiate a mini-SWarF to obtain CCDR concur, non-concur, and comment on proposed Joint Standards of Life Support, complete by 1 November



# Logistic Services POA&M

